

TWO NEW SPECIES OF CRATAEGUS FROM MISSOURI

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With two text figures

Crataegus hannibalensis, sp. nov. Arbor 6–8 m. alta vel frutex arborescens 4–6 m. altus, ramulis annotinis gracilibus vel paulo validis glabris fusco-viridibus, spinis numerosis. Folia ovata vel obovata vel oblongo-ovata, serrata, apice acuta, basi cuneata in petiolum 8–12 mm. longum attenuata, 2.5–4 cm. longa, 2–3 cm. lata, surculorum validorum ad 5–6 cm. longa, 4–5 cm. lata, matura firma, crassa, glabra, dentata, nervis superne manifeste impressis. Inflorescentiae glabrae, laxae, plerumque 5–16-florae; flores 14–16 mm. lati, staminibus circiter 10, stylis 1–3 plerumque 2; sepalis lanceolatis integris vel sparse dentatis. Fructus ovoideus, obovoidea-oblongus vel rare subglobosus, 8–10 mm. longus, 7–8 mm. latus, firmus, viridis denique rubro-luteus raro pruinosis, seminibus 2–3 plerumque 2 ovalibus dorso sulcatis.

A tree 6–8 m. tall, or sometimes an arborescent shrub 4–6 m. tall, with intricate ascending or horizontal branches and slender to stoutish flexuous branchlets, glabrous and olive-green or olive-brown at the end of the first season, usually armed with numerous stout, straight or curved purplish thorns 3–6 cm. long. Bark gray or pale brown, slightly scaly. Leaves obovate, oblong-obovate or oval, acutely pointed, short-acuminate or rarely rounded at apex, cuneate at the base and attenuate into the short 8–12 mm. long petioles, sharply serrate usually nearly to the base, glabrous, firm to subcoriaceous at maturity, yellowish-green above and slightly paler beneath, with slender but prominent mid-rib and 5–7 pairs of parallel veins elevated on the under surface and conspicuously impressed above, those of the fruiting branches mostly 2.5–4 cm. long and 2–3 cm. broad, on vigorous sterile shoots often 5–6 cm. long and 4–5 cm. broad, and with margins coarsely serrate or dentate. Flowers in loose glabrous compound 5–16-flowered corymbs, 14–16 mm. in diameter; pedicels slender, often glandular, 1–2 cm. long; stamens about 10; anthers in specimens examined pale yellow; styles 1–3, usually 2; calyx-lobes lanceolate, entire or slightly serrate towards the base, glabrous without and glabrous or slightly villous within. Fruit oval, oblong-obovoid or rarely nearly globose, 8–10 mm. long, 7–8 mm. thick, hard and green until late in the season, turning dull red or orange-red and becoming mellow when fully ripe late in September, rarely with a

slight pruinose bloom. Fruiting calyx sessile or slightly elevated, with a broad shallow cavity; calyx-lobes often persistent and appressed, flesh thin; nutlets 1-3 but usually 2, relatively large, oval or elliptic in outline, blunt or rounded at the ends, and with broad shallow ridges and grooves on the dorsal surface.

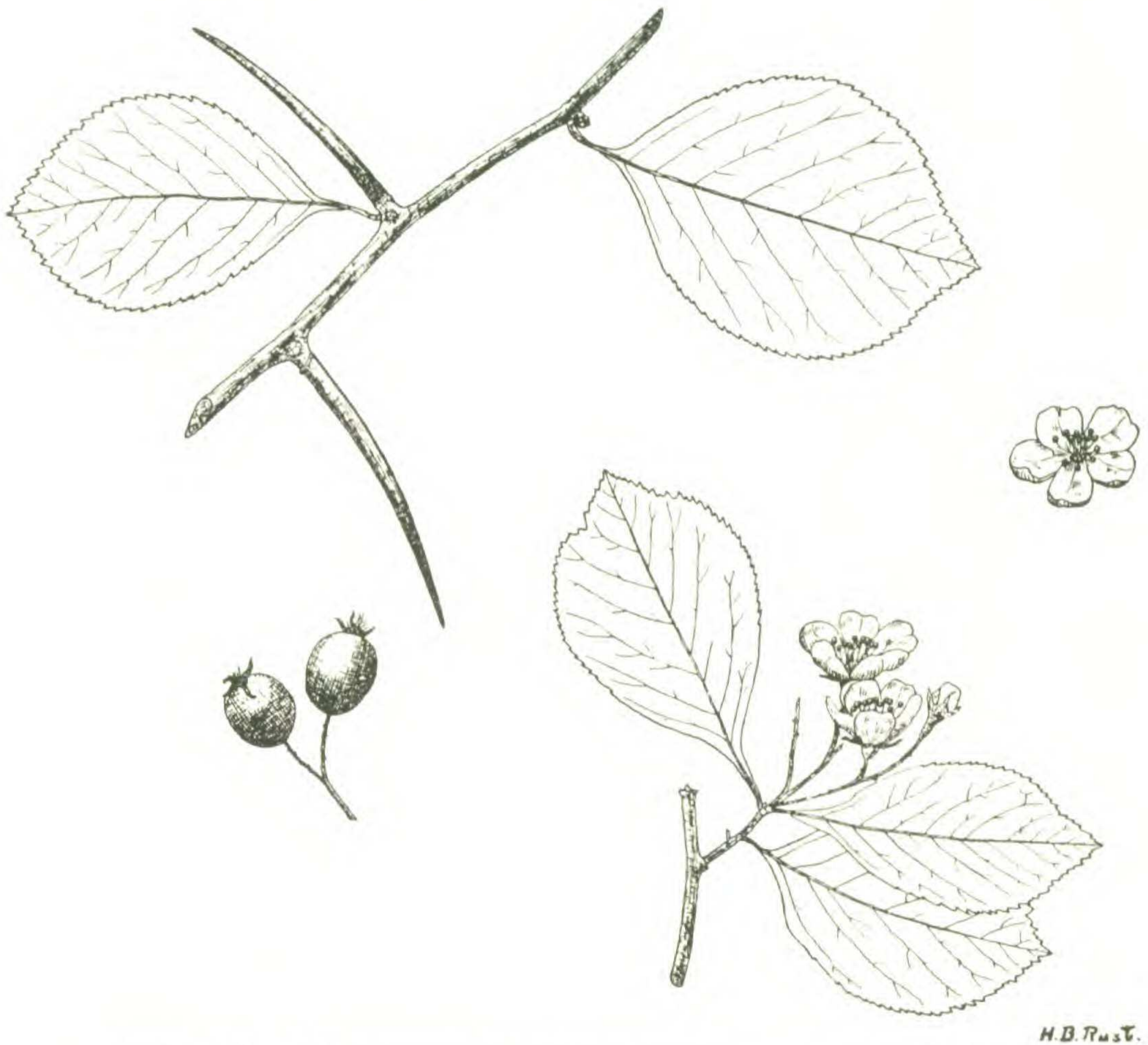


FIGURE 1. *CRATAEGUS HANNIBALENSIS* E. J. Palmer. $\times 2/3$

Thickets and borders of woods, in fertile soil, on limestone hills or often along bluffs and banks of streams. *Crataegus hannibalensis* is rather abundant in northern Missouri and southeastern Iowa, and it is probably more widely distributed. A specimen collected in western Ohio seems to belong here.

This species is conspicuous and easily distinguishable on account of its rather large (for the group) yellowish-green leaves with deeply impressed veins, the pale olive branchlets and comparatively small oval or oblong fruit. In their deeply impressed veins the leaves resemble somewhat certain species of the *Punctatae* group, but the characters of the fruit and flowers and the entire absence of pubescence seem to place it

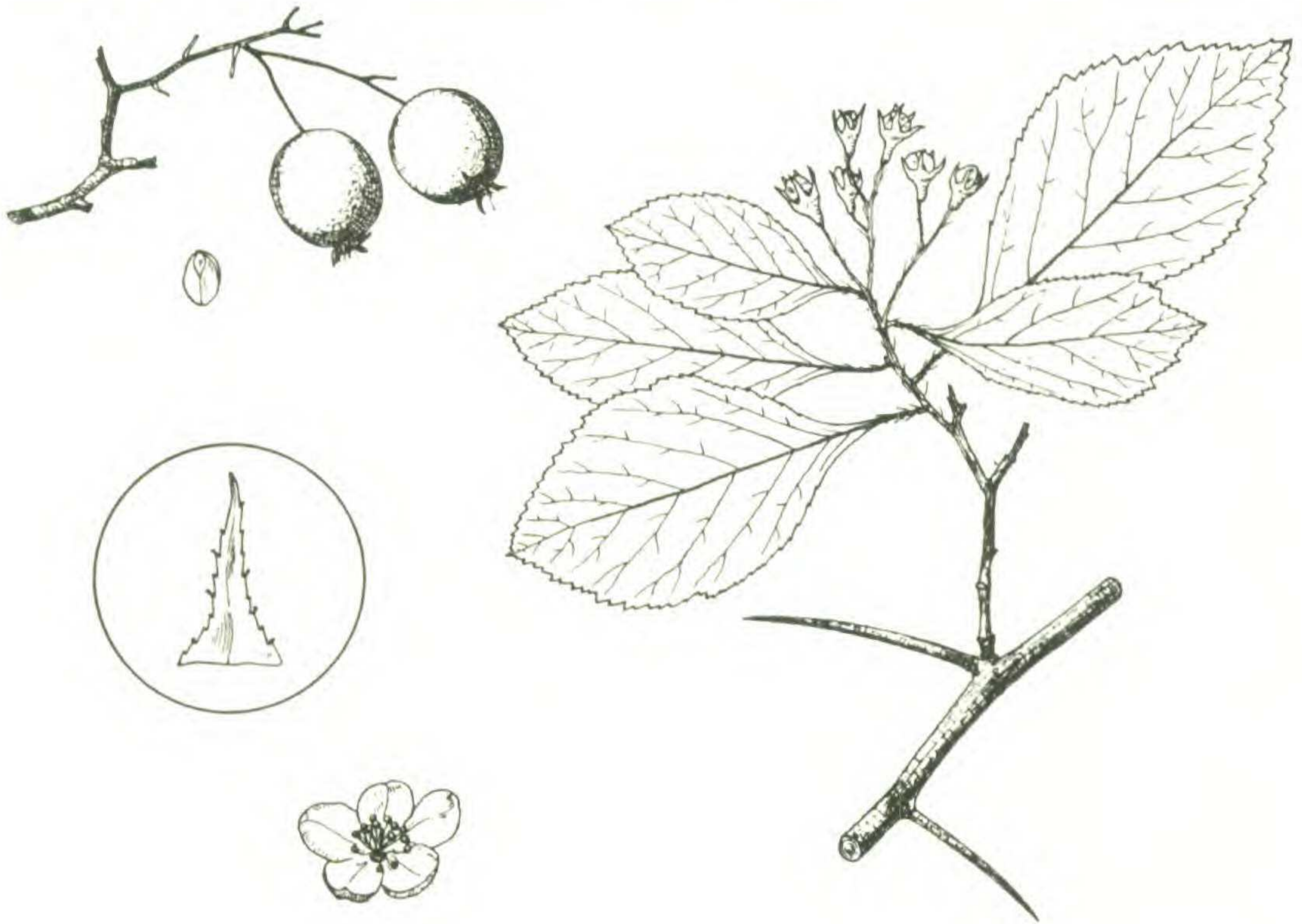
clearly in the *Crus-galli* group. The type specimen is in the herbarium of the Arnold Arboretum.

M i s s o u r i : Hannibal (Marion Co.), *John Davis*, no. 177, Oct. 6, 1911, May 14, Oct. 10, 1912, Oct. 13, 1913; *E. J. Palmer*, no. 20381, Sept. 7, 1921; no. 20382 (type), Sept. 7, 1921; no. 20405, Sept. 8, 1921; no. 22337, Oct. 24, 1922; south of Hannibal (Ralls Co.), *John Davis*, no. 1645, Oct. 4, 1916; Eolia Pike Co., *John Davis*, no. 25, Sept. 30, 1912; no. 2147, Sept. 20, 1913; no. 2149, Sept. 22, 1913; no. 2153, Sept. 21, 1913; Dumas, Clark Co., *B. F. Bush*, no. 10139, July 28, 1923; between Renick and Clark, Macon Co., *E. J. Palmer*, no. 35943, May 21, 1929; between Lancaster and Downing, Schuyler Co., *Palmer & Steyermark*, no. 40970, June 30, 1933; Mill Grove, Mercer Co., no. 41270, July 4, 1933; Shelbina, Shelby Co., no. 40865, June 28, 1933; Eagleville, Harrison Co., no. 41340, July 6, 1933; St. Francois Co., *C. S. Sargent*, Oct. 5, 1899. **O h i o :** Springfield, *R. E. Horsey*, no. 338, May 17, Oct. 25, 1915. **I o w a :** Keokuk, Lee Co., *E. J. Palmer*, no. 21829, Sept. 6, 1922; no. 21831, Sept. 6, 1922; no. 40595, June 25, 1933; Burlington, Des Moines Co., *E. J. Palmer*, no. 21800, Sept. 6, 1922.

Crataegus Danielsii, sp. nov. Arbor 6–7 m. alta vel frutex arborescens 4–6 m. altus. Folia oblongo-ovata, elliptica vel rhombica, grosse serrata, saepe supra medium obscure inaequaliter incisa, apice acuta vel acuminata, basi cuneata in petiolum gracillimum 8–15 mm. longum attenuata, matura papyracea sed firma, superne glabra, infra paulo villosa, 2.5–4 cm. longa, 1–2.5 cm. lata, ramulorum sterilius ad 5–6 cm. longa 3–5 cm. lata. Inflorescentiae laxae, ramosae, paulo villosae, 6–15-florae, bracteis linearibus glanduloso-serratis. Flores 14–16 mm. lati, staminibus circa 12–15, antheris rubicundis, stylis 2–4, plerumque 3, sepalis lineari-lanceolatis integris vel paulo glanduloso-serratis. Fructus subglobosus, 8–12 mm. latus, maturus rubicundus; seminibus 2–3 dorso sulcatis.

A tree 6–7 m. tall, or sometimes an arborescent shrub 4–6 m. tall, with erect or ascending intricate branches and slender branchlets, more or less villous when young in the typical form, and armed with slender thorns 2–3 cm. long. Leaves oblong-elliptic, oblong-obovate or narrowly rhombic in outline, sharply and irregularly serrate, often obscurely incised above the middle with one or more pairs of shallow lobes or unsymmetrical with one or more odd lobes, pointed or acuminate at the apex, attenuate at the base into the slender 1–1.5 cm. long petioles, usually red as they unfold, and then villous on both surfaces, thin but firm at maturity, glabrous above and more or less villous along the veins beneath, those of the fruiting branches mostly 2.5–4 cm. long and 1–2.5

cm. broad, and up to 5–6 cm. long and 3–5 cm. wide on vigorous sterile shoots; petioles usually sparsely villous, sometimes with a few scattered glands. Flowers 14–16 mm. in diameter, in loose slightly villous compound corymbs; pedicels slender, 8–15 mm. long, glabrous or sparsely villous; bracts numerous and conspicuous, narrowly linear, finely glandular-serrate on the margins; stamens usually 12–15; anthers pink or rose-color in specimens examined; styles 3–4, usually 3; calyxlobes linear-lanceolate, entire or somewhat glandular-serrate towards



H. B. Rust.

FIGURE 2. *CRATAEGUS DANIELSII* E. J. Palmer. $\times 2/3$

the base. Fruit subglobose, 8–12 mm. in diameter, pruinose, becoming dull crimson when ripe in late September or October, flesh thin and hard; nutlets 2–3, usually 3, oblong, rounded at the ends and with broad shallow grooves and ridges on the dorsal surface.

Limestone glades and hillsides in the vicinity of Columbia, Missouri.

Several trees referable to this species have been found, all so far as known within a few miles of the type locality. The extremely local distribution, the variable and often asymmetrical outline of the leaves and the sparse and variable pubescence, nearly or quite absent in some specimens, all suggest the possibility of a hybrid origin, and it may have

originated as a cross between *Crataegus crus-galli* and *C. verruculosa*, both of which are growing in the immediate vicinity. The specific name is for Dr. Francis Daniels, author of a Flora of Columbia, Missouri, and vicinity, who first collected it there.

M i s s o u r i : near Columbia, Boone Co., Hawthorn glades, north of Columbia, *Francis Daniels*, Sept. 26, 1902; May 3, 1903; *W. H. Rickett*, no. 8 (Crat. #8), 50 yds. west of Balanced Rock, May 3, 1931; no. 36 (Crat. #35), north side of Walnut St., west of highway 63, May 6, 1931; *Francis Drouet* (Crat. #8, W. H. R. #107), 50 yds. west of Balanced Rock, Oct. 4, 1931; (Crat. #8, W. H. R. #69), west of Balanced Rock, Sept. 15, 1931; (Crat. #35, W. H. R. #71), north side of Walnut St., west of highway 63, Sept. 22, 1931; *E. J. Palmer*, no. 39265 (type), May 4, 1931; near Hinton, Boone Co., *W. H. Rickett*, no. 40 (Crat. #39), 4.4 miles north of Hinton, May 17, 1931; no. 43 (Crat. #42), 1.3 miles south of Hinton, May 17, 1931; 84 (Crat. #54), 3.6 miles north of Hinton, Sept. 31, 1931; no. 86 (Crat. #56), north of Hinton, Sept. 30, 1931; no. 88 (Crat. 42), 1.3 miles south of Hinton, Sept. 30, 1931; no. 91 (Crat. #43), 2.3 miles south of Hinton, Sept. 30, 1931. Type in the herbarium of the Arnold Arboretum. All other specimens examined are in the herbarium of the University of Missouri.

In a few specimens examined the young foliage, branches, and inflorescence are quite glabrous and in others there is only the slightest trace of pubescence in the form of a few scattered hairs on either the pedicels, petioles or veins of the leaves. This may be distinguished as *Crataegus Danielsii* f. **glabra**, f. nov.¹

Thickets, limestone hills and glades, Boone County, Mo. With the type.

W. H. Rickett, no. 39 (Crat. #38), 4.4 miles north of Hinton, Mo., May 17, 1931, in the herbarium of the University of Missouri, may be taken as the type of this form.

HERBARIUM, ARNOLD ARBORETUM,
HARVARD UNIVERSITY.

¹A typo differt ramulis foliis inflorescentiis glabris vel raro leviter pilosis.